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ABSTRACT

Strategies utilized by district superintendents to implement school improvement plans in response to state-mandated change are examined in this report. Methodology involved document analysis of written plans and interviews with 30 Maine superintendents and assistant superintendents who were identified as successful developers of school improvement plans in large, midsize, and small districts. Findings indicate that the ways in which managers interpret and analyze the environment affect strategic outcomes and that responses are reshaped by unique contexts characterized by uncertainty. Although district size influenced superintendents' strategies, the ways in which they coped with perceived uncertainties had greater impact on program effectiveness. Based on the Daft and Weick (1984) model, the superintendents can be characterized overall as "prospectors," preferring external and personal sources of information, active engagement, and relying upon an incremental trial and error decision-making process. They managed uncertainty by synchronizing their strategic behaviors with the unpredictable nature of their environment, and the most effective emphasized process over outcome. Two figures are included. (29 references) (LMI)

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Organizational Responses to External Demands: Strategies Employed by Superintendents in Developing and Implementing State Mandated Improvement Plans

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Organizational responses to external demands, Strategies employed by superintendents in developing and implementing state mandated improvement plans

The recent emphasis on national goals for education (Cuban, 1990) intensifies the need to understand the forces that shape implementation of policy at the district level. With the current demand for school improvement increasing in urgency even in a period of economic contraction, responding to uncertainty or an unpredictable environment is an important function of the superintendent. In fact, the leadership role provided by the superintendent remains a critical linkage in translating educational reform legislation into change or improvement (Cuban, 1984; Firestone, 1989; Odden, 1986; Timar and Kirp, 1987).

Recent demands for change in school districts have shifted from change initiated from within the organization to externally imposed change directed from state departments of education (Odden and Dougherty, 1982; Odden, 1986). A study conducted in the state of Maine investigated strategies superintendents developed as they implemented school improvement plans in response to state mandated change (Wills, 1990). Research explored superintendents' perceptions of environmental uncertainty and the ways in which superintendents' interpretations of their environment shaped their decisions to implement change. Patterns of strategy

formation were also studied in relation to district size.

Applying the findings of Child (1972), Weick (1969), and other researchers (Aldrich and Pfeffer, 1976: Pfeffer, 1982); Aguilar, 1967; Miles and Snow, 1974; Tung, 1976), whose work identified the properties of the environment, effects of the environment on organizational structure and strategic responses to the environment, this study argued that the "effects of environments are mediated through the filter of managerial perceptions," (Weick, 1984) and that perceptions imply learned responses as well as socially constructed reality. Daft and Weick's (1984) "model of organizations as interpretation systems: provided a template for examining the relationship between managers' perceptions of the environment and strategies they develop.

(Figure 1 here)

The basic premises of this study rest on Daft and Weick's conceptual model which examines the relationship between modes of interpretation, perceptions and management behavior. This model postulates that organizations are "open social systems that process information from the environment." (Daft and Weick, 1984, p. 285). A second assumption of this model asserts that cognitive maps are developed by managers in an organization through information sharing. Interpretation of information results in organizational behaviors and activities. Further, "strategic-level managers formulate the organization's interpre-

tation" (p. 285) and control or manage the responses to the environment based on their interpretation.

Finally, organizations differ in their mode of interpretation and in the way they "know their environment". The act of scanning the environment and choosing or rejecting information sources is a critical function of knowing the environment and acting upon it (Aquilar, 1967; Hedberg, 1981; Duncan, 1979; Bartunek, 1984; Daft and Weick, 1984).

Methods/Techniques

In analyzing ex post facto recollections of thirty superintendents of large, mid-size and small districts in the state of Maine around their response to state mandates, relationships emerged linking superintendents' perceptions of the environment and their strategy decisions in response to that environment. This was an exploratory study (Guba and Lincoln, 1981) which used a qualitative design. Data were collected through interviews of thirty Maine superintendents and assistant superintendents recommended by a state school approval team as having successfully developed district-wide improvement plans mandated by the Maine legislature in the School Reform Act of 1984, one of the many examples of legislation adopted by states in response to national expressions of concerns about education which characterized the nineteen-eighties.

Open-ended and structured questions were posed to superin-

tendents to reconstruct the process used in their districts to develop strategies that responded to state mandates. Data were categorized (Mostyn, 1985) utilizing content analysis to discover relevant patterns related to perceptions of the environment and strategic responses. Written plans were examined to validate interview responses.

A content analysis methodology was applied to responses to interview questions. The interview protocol was designed to probe the process of environmental interpretation and decision-making in the development of school improvement plans. Findings which emerged from the content analysis suggested that the way a manager interprets and analyzes the environment affects strategic outcomes. As a result of this process of interpretation and analysis by district leaders, intended responses to policy are reshaped by unique contexts characterized by uncertainty.

Attempts to analyze interactions of variables in recent studies of turbulent physical environments (Gleick, 1987) may provide a metaphor useful in studying the reflections of superintendents on their strategies for planning and responding to increasing external and internal demands. For example, the Daft and Weick (1984) model (see Figure 1) defines strategic decision-making according to beliefs by organizational leaders as to the analyzability or unalalyzability of the environment. For those superintendents who believe in classical organizational concepts, who view the environment as analyzable or subject to rationality and therefore governed by predictable responses to prescribed actions, the decision-making process may be substan-

tially different from that utilized by superintendents who accept "chaos" and proceed accordingly, adopting more informal trial and error modalities.

Another way to examine this difference is through what Daft and Weick (1984) described as conditioned viewing (passive, programmed, defensive organizational decision-making) or more active analyzing, or systems analysis, both strategies assuming that the organizational leader can make sense of the environment (see Figure 1). For those superintendents who assume that the environment is not amenable to rational analysis, a passive approach would include much reacting, little attempt at making proactive decisions, while the active "enactor" would depend on "prospecting" through continual trial and error.

Daft and Weick's model of the "prospector" resembles work by physicists attempting to learn more about "chaos". An example is Lorenz's work on weather prediction which informed other scientific disciplines by arguing that "sensitive dependence on initial conditions" was an inescapable consequence "of the way small scales intertwined with large" (Gleick, 1987, p. 23.). In terms of organizational change and policy making, this discovery reinforces the notion that all situations are indeed unique, shaped by "initial conditions" which vary, and that predictability depends upon a highly improbable congruence or consistency of these "initial conditions".

It may be inferred then that effective organizational learn-

ing and decision-making would have to respond to this less clearly "analyzable" environment. Indeed, while studies in organization imply that "points of crisis magnify small changes," the chaos principle suggests that "such points were everywhere" (Gleick, 1987, p. 23).

As an analog to the multiplying demands and "points of crisis" which inform the world of the school superintendent, the chaos principle suggests that the system within which the district leader operates is turbulent and complex and therefore subject to uncertainty. A "point of crisis," such as the state's demand for a plan for school improvement presented the impetus for discovering patterns of uncertainty. In fact, recent work on organizational analysis (Peters, 1988) examines effective management in similarly "chaotic" or turbulent modern business environments.

Within the context of the models developed by Daft and Weick (1984) in response to interpretation of their environment by organizational leaders, this study identified categories of uncertainty and connections between specific beliefs about uncertainty in educational environments and the link between those beliefs and strategies for change.

In fact, six categories of uncertainty emerged from data analysis:

1) Uncertainty about career line, related to superintendents' beliefs about their own future

2) Uncertainty as a result of organizational structure, related to inadequacy of resources or complexity of the system

3) Uncertainty about accountability, related to responsibility and participation in decision-making

4) Uncertainty about linkages in school improvement, related to superintendents' beliefs about instrumentality

5) Uncertainty about the economic environment, related to perceptions of the influence of economic and social change in the community

6) Uncertainty about intent, related to interpretations of state motivation in mandating the school improvement plan.

District size in relation to strategic responses

A further level of analysis of these categories revealed varying patterns reflected in responses from district leaders in small, mid-size and large districts. District size appeared to shape the extent of the superintendent's role in the improvement process as well as the strategies available to meet the needs of the district and mandates of the state. Factors which led to uncertainty in the larger district, factors surrounding the complexity of a large organization affected the small district obversely: without additional staff and resources the superintendent of the small district was forced to "go it alone".

Strategies utilized by superintendents who participated in the study were found to be directed toward reducing equivocality or uncertainty (Daft and Weick 1984; Thompson, 1967) derived from

managerial perceptions of the six environmental factors or themes. Identified through textual analysis of the responses of district leaders, the six themes may be conceptualized as originating with the superintendent's internal ambivalence about career path and moving outward to the external ambiguities of the economic environment.

The context of uncertainty appeared to be located within the superintendent's internal experience of career (1) moving outward to the organization (2,3,4), the community (5) and the more distant, yet increasingly intrusive, state department of education (6). It was within this complex context that decision-making occurred; indeed the contextual uncertainty might be conceptualized as providing a moving frame or structure for situations which required responses.

(Figure 2 about here)

Whether responses were made in spite of, in reaction to, or with respect to the uncertainty of outcome, appeared to be dependent upon the superintendent's interpretation of the contextual factors. Essentially, the strategic response emerged from varying patterns of information retrieval and served to contribute to the reduction of perceived uncertainty or equivocality in the environment (Daft and Weick, 1984, p. 291).

For example, 70% of the superintendents interviewed indicated a preference for external and personal sources of information.

Applying the Daft and Weick model, the majority of the superintendent respondents could be expected to use "reacting" or "prospecting" strategies in responding to the state reform demands. In fact, both of these modes emerged in the study. Reactors tended to "build coalitions" through a strong participatory process. In mid-size and large districts in which many of the school reform strategies had already been introduced, the school improvement plan was primarily an opportunity for increased involvement and stronger linkages. The focus for improvement tended to be facility expansion and increased personnel. On the other hand, many of the leaders of small districts, the prospectors, used the school improvement plan as a lever for change and increased spending. More than fifty percent (50%) of the small districts responded to state demands by implementing nine of the forty strategies listed in the survey: developed board approved mission and goal statements, a district-wide process to develop consensus, articulated written curriculum, introduced teacher training in effective schools research, observation and peer supervision, engaged in long-range strategic planning, expanded programming, such as gifted and talented, fine arts, library, and guidance and increased support and clerical staff to relieve teaching staff of non-teaching duties.

Essentially, the external, personal scanning behavior of the superintendents promoted effective responses to the school improvement mandate in harmony with their unique district condi-

tions. Their behavior assumed an "unanalyzable" environment which did not behave predictably, and so needed to be continually tested so that adjustments could be made quickly and decisively.

Findings

A closer examination of each of the contextual factors which emerged from the interviews revealed associations between the context and strategy formation:

Superintendents' beliefs about their own future

Eighteen of the thirty district leaders (60%): 50% or five of the superintendents in small districts, 63% or seven of the superintendents in mid-size districts, and 75% or six of the district leaders (assistants and superintendents) in large districts expressed uncertainty about their future career path and were reluctant to affirm any concrete alternative even after probing from the researcher.

Eleven or 36% of the thirty district leaders suggested alternative possibilities after probing by the researcher; five or 50% of the superintendents in smaller districts indicated possible movement to a larger district (1), to higher education (3) or other (1); 37% or four of the superintendents in mid-size districts suggested movement to a larger district (1), higher education (1), retirement (1) and remaining in the district (1). The ambivalence of the superintendents regarding their own future

was reflected in strategic behavior which ensured control over the improvement process and its outcomes or provided a particular avenue for specialized expertise, such as facilities improvement or expansion.

The most prevalent strategy for all superintendents engaged in this study was immersion in the current situation. Time spent in reflection was limited to reacting to political realities of the present in all directions rather than in personal reflection on future planning or self study. The reduction of uncertainty in future planning and the effect of environmental demands on career security were facilitated through increasing opportunities for control and influence in the present. Superintendents sought such opportunities within the organizational structure and in many cases the surrounding community and social environment. The school improvement mandate appeared to provide such an opportunity.

Intensity of effort was displayed in many directions particularly in smaller districts; "jack of all trades" was a colloquialism used to identify the generalist role of the superintendent in the small district.

> In a small district you do everything... In a larger district you have help. I'm not sure if it would be easier for me, but if you cut your teeth... Here I'm jack of all trades...(3-S-Sm-D)

Also, more superintendents in small districts imagined moving to a larger district. A move of this type was described as an opportunity to specialize and delegate; on the other hand, super-

intendents expressed ambivalence about losing control of the entire process as district size increased.

In mid-size districts superintendents searched for internal supports and resources to bolster efforts toward the change process. Efforts at administrative team building and staff development were pursued in an attempt to derive mutual interpretations, beliefs and norms, securing the superintendent's position. Employing delegating and participatory strategies which most effectively deployed limited personnel, the superintendents relied upon the shared belief systems to maintain influence over organizational direction. More than 50% of the leaders in mid-size districts indicated strategies for planning which involved community groups and school based site management. Mid-size leaders, while ambivalent about their career direction, seemed more apt to see the improvement plan as a possible centerpiece or fulcrum for change in the district, and as an opportunity to enhance their own leadership role.

In response to state mandates, superintendents in large districts developed opportunities to specialize and to focus on an area of expertise (i.e. facilities, policy-making at the state level) which would serve them in future career opportunities. They sought concrete demonstrations of improvement and planning as a point of departure for career development. Larger staffs provided greater flexibility in task performance. Superintendents appeared to have access to greater versatility of responses

as well as more diverse internal and external resources to maintain control of strategy formation and interpretation of environmental information. However, the most common experience of superintendents in districts of varying sizes was expressed by one superintendent of a large district:

> I take it a day at a time. I don't really anticipate any other positions in education, but I just don't know. I take it a day at a time... especially in the superintendency, because you don't know what's going to happen in this job...(26-S-L-D)

Organizational Themes

Uncertainty related to inadequate resources or complexity of the organization.

In small districts the scarcity of human and fiscal resources increased demands on district leaders and threatened stability of the organization. While human and fiscal resources were more abundant as organizational size increased, the complexity of the larger organization presented other challenges to district leaders engaged in the improvement process. One superintendent in a small district presented the dilemma of organizational inadequacy in terms of maintaining an image of self-sufficiency while struggling to meet all the demands of the job:

> It's easier to see now that the district organization was an obstacle... the central office staff consisted of just a special education director who left because of the amount of work expected to do... I never asked for more help... which I think now I should

> have... for the sake of the system... Superintendents are slow to ask for help for themselves... people are skeptical of increasing administrative costs. As a group they want to be seen as people who can do it all by themselves. (S-Sm-4-D)

Superintendents utilized expanding and multiplying roles as fiscal agent, construction and facility manager, curriculum coordinator, and staff developer to cope with the inadequate structure and sparse administrative staff. In one case the superintendent was also principal of the K-8 district/school. Smaller district organizations varied in design and structure, some K-8, others K-12, and consisted of a variety of units of governance, school administrative districts, union, community school districts. Superintendents of school unions, for example, administered multiple school boards, budgets and improvement plans.

The complexity of organizational relationships increased uncertainty. Strategies ranged from political activities, such as increasing influence on the receiving 9-12 institution and representation on the board of directors of the receiving institution to organizational restructuring, such as decentralized or site based planning in union school districts. Other strategies included one superintendent's leadership and participation in a comprehensive staff retraining program, and in one district, investment in a systems analysis approach utilizing computer technology and a complex monitoring program to track goals and objectives.

Superintendents in mid-size districts felt pressure to grow with inadequate resources; districts were too small to acquire additional resources, too large to rely on personal contact for strategy formation and monitoring. Superintendents used the school improvement legislation as a lever to increase staffing, add additional programming and improve facilities. They placed a heavy emphasis on staff development and differentiated staffing. Several superintendents of mid-size districts were most reflective in terms of comprehensive visions for change and the development of teachers as leaders within a controlled process of staff training and development.

The complexity of governance and political structure in mid-size and some larger districts was observable as an issue for leaders. The number of board members in school administrative districts increased with the number of towns served. There were as many as 23 board members in one large district. In addition, the number of boards to manage in unions ranged from three to five, each with five members and separate budgets, facilities, and often competing agendas. For each board a different agenda for improvement emerged. Resources varied in each union town based on property wealth.

Superintendents of mid-size districts frequently attempted to control the improvement process through a steering committee structure; control over the process through structure, frequency of meetings, and administrative team leadership. However, the

school union organizational structure consisting of individual town school committees and budgets stymied a system-wide organizational change process. The need to satisfy individual constituencies produced a site based approach to school improvement based on unique community needs and expectations.

For superintendents of large districts, several factors contributed to the complexity and uncertainty of organizational structure and strategy formation:

1) The increased number of board members in school administrative districts produced highly complex committee structures.

2) In municipal districts, tenuous relationships with city councils by the board and superintendent increased the monitoring of budget implications of planned improvements. Elections for both city council and school committee provided additional uncertainty of response to improvement proposals.

3) A shrinking arena for district leadership evolved as administrative intensity increased and improvement activities were decentralized.

In response to the complexity of large district organizations superintendents developed a variety of strategies designed to reduce unintended outcomes:

1) strong administrative control on steering committees

2) delegation of supervision of the process to assistant superintendents with frequent interaction between superintendent and assistant

3) frequent committee meetings at the board level

4) review procedures for school based improvement process

5) strong administrative team process; frequent meetings

6) increase in external environment interaction to include frequent contacts with the city council and influential community members as well as board members.

Responsibility and involvement in decision making

General patterns

As districts increased in size the number of committees and levels of responsibility increased. The development of a strong administrative team was an attempt to reduce the uncertainty which grew with the increased distance between the district leader, the planners and implementers. The basic paradox accepted by the majority of the superintendents interviewed in the study was the need to expand involvement at the same time as the superintendent struggled to maintain essential management control.

In smaller districts the history of the planning process, including the level of involvement of the superintendent and participation by other personnel affected the acceptance of change. When all were involved in planning, then deviations from the decisions of planners by the district leader created underlying conflict, resentment and resistance. Involvement of staff was an essential strategy for increasing resources, maintaining support, ensuring implementation and expanding influence. The

process in one small district was especially painful for the superintendent who entered the district after the planning process and did not anticipate the significance of the ownership in even small changes recommended by teacher-planners. Plans to renovate a teachers' room and purchase new drapes for the library played a larger role than anticipated in the superintendent's ability to gain support and influence. The school improvement effort in some cases seemed to be reduced to "comfort items" such as a window in a teachers' room. Such cosmetic changes deterred examination of more profound deficits in district performance.

Further, small districts suffered from lack of personnel to include in the committee structure. A heavier burden was placed on the individual staff member to participate. However, the ownership in implementation was greater as was the emphasis on personal and community based issues.

As district size increased the strongly felt ownership appeared to dissipate somewhat. Instead, in larger districts, issues surfaced which related more to monitoring of implementation, consistency and coordination of improvement strategies. In mid-size districts a similar strain was placed on personnel to meet legislative requirements. Frequently, the superintendent, not able to participate in all committee efforts and delegating leadership to building or community representatives was surprised by the emerging of specific and less predictable agendas and expectations. Some of the issues which emerged affected leader-

ship personnel and were particularly disconcerting as the school improvement team became a forum which detoured normal lines of communication. Unexpected issues such as long-smoldering dissatisfaction with a principal surfaced at school improvement committee meetings. This type of unintended outcome resulted in personnel changes which often led to deeper and more lasting levels of improvement and addressed long standing concerns.

Often, in larger districts, the structure for change and improvement was already in place with sufficient staff to take on leadership roles and a strong administrative team. In one district a reliance on decentralized approach and teacher-led staff development process coopted the legislative mandates. Otherwise reliance on buffers such as strong steering committees reduced uncertainty of recommendations and outcomes.

Beliefs about instrumentality

Although largely a matter of individual interpretation by superintendents, the response to uncertainty about linkages between school improvement planning and expected outcomes varied somewhat according to the district size or rather the availability of resources to apply to the problem.

The prevalent strategies in small districts were focused on seeking resources, maximizing scarce resources and building on the strength of few bureaucratic layers. Discrepancies between faculty and administrative perceptions of improvement needs were

more apparent and more glaring in smaller districts, less veiled by administrative layers. On the other hand, communication was more direct between administrators and staff and board members in small districts.

In many cases, as is obvious from the number of strategic changes which took place in smaller and mid-size districts in response to the school reform legislation, the mandate was seen as a lever for deeper levels of change. A total aggregate number of 139 strategy changes were identified by the ten (10) superintendents of small districts. The eleven (11) mid-size district leaders identified 147 and the nine (9) leaders of large districts identified 102 strategies.

Leaders of small districts included long-range planning, teacher training and staff development more frequently than did the leaders of mid-size and large districts who had in many cases initiated these programs prior to the reform legislation. Thus, while personnel and programs were also added, there was an emphasis as well on developing personnel and clarifying the technology around instruction and outcomes.

Additionally, there was an attempt in some small districts to link program change with effectiveness and achievement through instructional and supervisory skill development. Monitoring and evaluation of this process were facilitated by the smaller numbers and ease of identification of deviation. All staff members could be trained at once, observed and involved in a process of

remediation when necessary.

Effective superintendents of smaller districts tended to engage in the training and supervisory roles, acting as curriculum and staff development coordinators while maintaining credibility and influence on the implementation phase. Linkages were tightened to validate and evaluate change through revised staff evaluation procedures.

With the increased size and a perception of less control over outcome, more technical approaches were used to certify linkages. Strategies included adding program and personnel, increasing professional development opportunities, increasing staff responsibility, coping with diversity of input with program additions and alternative programs, and focusing on immediacy of the issue of achievement.

However, two superintendents of mid-size districts described a thorough and comprehensive process for change which made the most of resources at hand while attempting more profound changes at the level of instructional exchange in the classroom. Both of these superintendents were willing to address "less measurable things" rather than reducing the improvement concern to test results.

One superintendent imposed a thorough reorganization of administration and teacher training process utilizing a penetrating needs assessment; the second superintendent worked from the inside, providing opportunities for teachers and administrators

to reassess their own performance and obstacles to effectiveness. The dialogue on instructional change emphasized a personal and reflective approach to individual change in the classroom and as a colleague.

In most large districts the school improvement plan was viewed as a "touchstone" or symbol of program effectiveness. As one district leader stated, the parts were lying about and simply needed to be put together. The plan itself was frequently described as redundant and intrusive in larger districts which had already engaged in strategic planning. The effort was made to rewrite district plans to comply with state demands.

Issues for larger districts appeared to be rising expectations implied by the state demands and internal pressures for concrete improvements. The complexity of the larger organization intensified the difficulty in clarifying linkages and securing implementation of strategic changes. The translation of curriculum into classroom instructional practices became more problematic.

The pitfalls in reliance on decentralized interpretation were described by an assistant who was placed in charge of the improvement effort. These pitfalls included distorted interpretation of improvement objectives, and uneven levels of communication to staff members in several schools. Investment in the process depended upon agendas of principals and agreement by administrative staff on the value and interpretation of the program.

Interaction of organizational factors: An example from a large district

The process of developing the school improvement plan in one large district was described by the assistant superintendent in charge of the planning process. His narrative of a district's response to the mandate demonstrated issues of uncertainty related to organizational structure, responsibility and involvement, and beliefs around instrumentality.

The assistant made it clear that the responsibility for the plan came to him via the "hole in the wall" (door of his office) from the superintendent and that the state mandate did not really change the district's approach to planning. "I'm the person in the system who deals with committees."

> The committees are representative, but if you ask them what aspect of the SIP was it they were working on they would look bewildered.. (it) looks like people are involved.. I did the whole thing here at my desk.. that became the plan.. I wouldn't have cared if they'd thrown it out.. This is not a ship being built.. parts were lying around the store waiting to be put together.. we shook up the apple cart.. apples will land with a few bruises here and there.. there were some.. pile it a little differently, it's still an apple cart.. I work in the most promising arena.. you can't change anything if you get killed in the process. But you don't want to get "gawmy": with the state. (A-L-25-M)

This rather metaphorical commentary by the assistant superintendent continued with further remarks on the concept of participation:

> participatory decision-making is widely misunderstood.. (You) don't have to have everyone involved in everything.. but I believe in the principle.. I orchestrated it all.. (It) doesn't mean I dictated it.. "how does it look -- does it have what they want".. the state is interested in the process only in that people get involved.. if you ask them (the teachers) if it's real they won't know what you are talking about. In fact they are doing it.. certain groups in the system get savvy.. get an agenda through the SIP (School Improvement Plan) such as a media center or middle school. (A-L-25-M)

The imagery of the "shipwreck" on the beach and the spilled apple cart evoke the kind of scattered and "loosely coupled" (Weick, 1978) aspects of larger districts. The organizational structure is composed of necessary tools and resources, but putting them together to work in an organized and predictable manner is another matter all together.

The assistant writing the plan at this desk is emblematic of an attempt to appear to "tighten" the coupling. However, as he inferred in his discussion of the level of real knowledge of the plan by staff members, the "tight" elements were more metaphor than substance. At the same time that this assistant remarked on the fact that teachers were not aware of their participation in the school improvement process as such, he admitted that by opening certain opportunities for involvement, certain interests developed a forum and recognized a chance to advance their cause.

Contextual themes of organizational complexity in the large district represented by delegation of the planning process to the assistant were embedded in the assistant's narrative. The dilem-

ma of involvement was expressed in the emergence of interest groups and causes. A strategic response to uncertainty of instrumentality was demonstrated in the assistant's unilateral writing of the plan utilizing already implemented programs. The lack of staff awareness was mitigated by the fact that they were already participating in the programs outlined in the plan.

Issues of Economic and Social Change in the Community

Beliefs about economic uncertainty

Four primary factors which emerged as contributing to uncertainty in the external environment for districts of all sizes related to economic and social change:

1) fluctuating enrollments
2) rising property valuations
3) threats of decreasing state subsidies
4) threatened tax caps

Not emphasized by superintendents in their discussion of issues affecting decision-making were local community groups rallying around specific issues. Nor were problems with board of directors representing separate constituencies or individual agendas a common concern. More prominent were issues of economic variability and concern for future support by the state legislature for local improvement. Costs associated with the provisions of a collective bargaining agreement were also rarely noted.

Strategic responses to economic and social changes varied

with the interpretation district leaders constructed from observed trends. Increased involvement with legislative representatives, increased concern with community reaction to budget figures, increasing caution concerning program growth and costs associated with improvement affected school improvement strategies. Concrete returns or symbols of improvement were preferred. The addition of personnel, facilities and program were preferred to expenditures for less visible improvements such as staff development and time for staff interaction. Negative community responses to release time and use of substitute teachers to replace teachers who were working on district planning or attending conferences may have inhibited alternative approaches.

Issue of Ambivalent Interpretation of State Motivation Beliefs About Intention

Superintendents' interpretations of state motivation in initiating the school improvement planning process ranged from purely political reaction, or a response to pressures emanating from the federal government to a sincere effort to promote academic excellence and to equalize educational opportunity throughout the state. Several superintendents perceived pressures for accountability at the state and local level and a dissatisfaction at the state level with local efforts especially in small rural districts.

Uncertainty as to the intent of the improvement process and

sustained support of the improvement process may have resulted in more efforts toward documentation of compliance and less risk-taking with regard to strategic decision-making. Most of the strategies employed by district leaders were focused on meeting school approval requirements, rather than assessing specific local needs and organizational deficits. Small districts were able to use the process to "catch up" with programming and personnel, and training.

Thus, over 50% of small, mid-size, and large district leaders reported expanded programming including gifted and talented and fine arts, increased guidance and support staff and increased clerical staff. However, the majority of superintendents of small districts interviewed in the study (and therefore identified by the state department as having developed an effective improvement plan) also reported the implementation of a more comprehensive district-wide improvement process which included staff development, curriculum revision and teacher training in effective schools research.

Leaders in mid-size and large districts for the most part reported having implemented these strategies prior to the school improvement effort. The focus of leaders in mid-size and large districts was primarily on increasing staff and programming, refining already initiated programs, and documenting compliance to the state department.

Patterns of strategy formation related to district size

Organizational Responses

While findings reported above appear in some cases to distinguish response patterns by district size, no direct relationship may be inferred. However, district size appears to be another factor affecting the environmental perceptions and strategic decision-making of the superintendent. This study does not presume to predict a direct relationship between size of the district and the superintendent's perception of equivocality or the potential for reduction of uncertainty. Indeed, issues of inadequacy of resources and personnel appeared in some cases to increase uncertainty of outcome in smaller districts and to reduce consideration of strategic options.

In the ten small districts, lack of size also implied the need for administrators to take on multiple roles. Intervention through state mandates increased and expanded role demands, in a few cases threatening stability of the organization. In addition, small districts varied considerably in organizational structure which often meant that their connections with other districts and administrative units were complex and varied in levels of dependency on other organizations.

Rather than district size itself affecting superintendent's perceptions of uncertainty, it may be hypothesized that the six contextual themes identified above interact with the size of the district to intensify or dilute these perceptions. Within the context of these interactions strategic decision-making takes place in response to external demands. The strategies appear to

emerge from the intensity of superintendent's need to reduce contextual uncertainty and to vary with that intensity of concern or interest. Thus, some superintendents choose to buffer or defend while others engaged the uncertainty as a bullfighter engages the unpredictable yet existentially present adversary.

Strategies and Levels of Engagement

It is clear from the content analysis of the interview responses as well as the written school improvement plans from the districts of participating superintendents that all engaged in legitimating activities (Cuban, 1984; Thompson, 1968), such as documentation which served to buffer and defend the organization from increased monitoring by the Department of Education. In fact the documentation and satisfaction of legislated requirements as revealed by monitoring visits resulted in the identification of district leaders to be included in this study. However, the range of strategies in several instances exceeded the demand of the department in several cases were integrated into a superintendent's larger vision for change (Bennis and Nanus, 1985; Firestone, 1989). Two of these cases in middle-size districts have been described in some detail in the study.

Although the analysis of self-reported strategies employed by superintendents suggested that increased personnel and expanded programming were the most frequent responses to state demands, there were examples of mutual adaptation or coopting of mandates

to gain community support for needed improvements (Selznick, 1948; Thompson, 1967). For example, construction of library facilities in three mid-size districts required not only funding for personnel and materials in a budget process, but a special referendum to construct facilities, surpassing the minimal requirement of the mandate for access to a library program. In some districts, the superintendents were further to articulate deeper levels of change through staff development, peer coaching and efforts at engaging staff in a rethinking of roles and instructional decision-making.

How the superintendent perceived the mandate, narrowly or broadly, as a threat to be parried or an opportunity for articulating a vision for the district seemed to be the key factor in structuring the situation and defining the response (Child, 1972; Weick, 1969). Further, that structuring of response within the context of uncertainty outlined above itself required either a defending posture or the more common "prospecting" mode more harmonious with the tentative and unpredictable behavior of the internal and external environment.

Although increased staff and programming may appear to be concrete defensive strategies focused on compliance with state demands, these changes were the result of incremental actions testing the outcomes and responses and garnering support through informal and formal interactions with affected groups. For example, in one large district, the school improvement process

was "integrated into the system". The district was already invested in a decentralized teacher-led staff development and goal setting system. The assistant superintendent asserted that the school improvement plan "doesn't run the system as I gather it does in some places". He goes on to describe a system in which committees work autononomously. His role is to facilitate communication:

> They understand their role and how they fit together. So they do a good job I know the superintendent's priorities... I make him aware of the feeling of the committee. We don't turn to conflict. Not more than two proposals were rejected by the superintendent in the last five years. (A-L-27-M)

In another mid-size district, the superintendent focuses on the articulation between the initiation of change and effective implementation by embracing the uncertainty involved in reshaping the way meaning is constructed by teachers and the traditional assumptions about how students learn:

> I make the assumption that they (teachers) can think and will think and I set an expectation level because I believe they can... I'm interested in making incremental changes. I felt substantial pressure in that direction. We all discovered a lot, trying to understand what people have in their heads is a definition of curriculum and it's a massive task. (S-Mi-19-M)

Conclusion

District leaders interviewed in this study appeared to make decisions and design strategies within a context of uncertainties regarding 1) their own career line; 2) the inherent qualities of

the district and organizational structure; 3) issues of accountability and responsibility in decision-making; 4) beliefs about instrumentality or efficacy of improvement measures; 5) perceptions of economic and social change in the community and 6) their assessment of the motivation or intent of state reform directives.

The strategies district leaders chose to implement appeared to be shaped by their perceptions of factors which were identified as susceptible to influence. While size appeared to be a factor in shaping strategies, the way superintendents coped with uncertainties they identified seemed to be more critical to the alleged effectiveness of their school improvement plans.

Utilizing the Daft and Weick (1984) model to identify the way superintendents coped with uncertainties, collectively, the superintendents interviewed in this study might be characterized as "prospectors". Their preferred sources of information were external and personal. Their interpretation mode was "enacting" or active engagement with their environment. They acted with the assumption that the environment was unanalyzable and primarily relied upon an "incremental trial and error" decision process. This mode of interpretation according to Daft and Weick (1984) results in "some equivocality reduction". Behaviors and strategies are adjusted based on reactions from environmental factors; the prospector actively probes the environment for responses, revising and modifying. Effective strategies adjust to uncer-

tainty by allowing for unpredictable responses.

It is significant as well, that while large districts could rely on a more sophisticated central office staff, none of the districts contained a research and development or systems analysis unit. However, at least one mid-size superintendent did use a computerized goal setting and measurement system. The superintendents interview appeared consistent with the Daft and Weick (1984) profile by leading organizations which received "irregular reports and feedback from the environment", as well as "selective information".

Given the interpretation of an "unanalyzable" school district environment, superintendents who were selected for having responded successfully to a demand from the external environment appeared to have managed the uncertainty by synchronizing their own strategic behavior to the unpredictable nature of their environment. That is, the strategies selected by the superintendents were for the most part documentary of practices already in existence or changes in more visible areas of increased personnel or facilities, strategies which could be rewritten, reshaped or reframed to meet new demands. For most, the process of school improvement was the critical event; those who appeared to be most effective placed their emphasis on process rather than outcome.

As the study suggested, the superintendents viewed their influence on process as significantly greater than their influ-

ence on outcome. The paradox existed in the fact that process seemed to engender uncertainty; outcomes suggested concrete and visible effects. However, given the complexity of identifying clear and measurable outcomes in education, the improvement process may indeed appear to be more tangible and measurable than the results.

Significance of the study

By applying the theoretical models of cognition, information processing and perception to the practice of administration, this research should contribute to our understanding of how superintendents respond to increasingly demanding environments. Ways in which the superintendent's perception of environmental uncertainty shapes the implementation of reform legislation are illustrated with empirical data from a sample of superintendents in a New England state.

As states impose more constraints on local attempts to meet the educational needs of diverse constituents, the process of implementation becomes increasingly important (Cuban, 1984; Firestone, 1989; Floden, Porter, et.al., 1988). Findings point to ways policy makers might recognize the diversity of local interpretation, incorporate this knowledge into more sensitive regulatory processes and thereby encourage effective implementation. The study presents substantial evidence that imposing national standards or assessment criteria, while asserting con-

crete documentation of improvement and achievement ignores the complexity of interpretation which paves the way toward meeting the standards. The distance "'twixt cup and lip" needs to be understood in order to increase the probability that local outcomes are congruent with a realistic national vision of meaningful improvement.

Figure 1

Relationship Between Interpretation Modes and Organizational Processes

ASSUMPTIONS ABOUT ENVIRONMENT

	Passive	Active
Unanalyzable	**UNDIRECTED VIEWING** Scanning Characteristics: 1. Data sources: external, personal. 2. Acquisition: no scanning department, irregular contacts and reports, casual information. Interpretation Process: 1. Much equivocality reduction 2. Few rules, many cycles Strategy and Decision Making: 1. Strategy: reactor. 2. Decision process: coalition building.	**ENACTING** Scanning Characteristics: 1. Data sources: external, personal. 2. Acquisition: no department, irregular reports and feedback from environment, selective information. Interpretation Process: 1. Some equivocality reduction 2. Moderate rules and cycles Strategy and Decision Making 1. Strategy: prospector. 2. Decision process: incremental trial and error.
Analyzable	**CONDITIONED VIEWING** Scanning Characteristics: 1. Data sources: internal, impersonal. 2. Acquisition: no department, although regular record keeping and information systems, routine information. Interpretation Process: 1. Little equivocality reduction 2. Many rules, few cycles Strategy and Decision Making: 1. Strategy: defender. 2. Decision process: programmed, problemistic search.	**DISCOVERING** Scanning Characteristics: 1. Data sources: internal, impersonal. 2. Acquisition: Separate departments, special studies and reports, extensive information. Interpretation Process: 1. Little equivocality reduction 2. Many rules, moderate cycles Strategy and Decision Making 1. Strategy: analyzer. 2. Decision process: systems analysis, computation.

ORGANIZATIONAL INTRUSIVENESS

Excerpted from: Daft, R. I., & Weick, K. E. (1984). Toward a Model of Organizations as Interpretation Systems. Academy of Management Review, 9(2).

Figure 2

Superintendents' Focus of Environmental Uncertainty and Interpretive Modes

Environment	Focus of Uncertainty	Interpretation (Issues, Beliefs, Perceptions)
SELF	Career lines	Superintendents' beliefs about their own future
ORGANIZATION	Organizational structure	Issues of inadequacy and complexity
	Accountability	Issues of responsibility and involvement in decision-making
	Linkages in school improvement	Beliefs about instrumentality
COMMUNITY	Economic environment	Perceptions of economic and social change in the community
STATE / DEPARTMENT OF EDUCATION	Intent	Ambivalent interpretations of state motivation in initiating the school improvement planning process

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